ANCHOR
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41 Sequin Drive • Glastonbury, CT • 06033

February 7, 2012

Mr. Lawrence Hanson
MassDEP/Solid Waste Section
436 Dwight Street
Springfield, MA 01103

Re: NLR, Inc.
Beneficial Use Determination Permit Application

Dear Mr. Hanson:

This letter is being provided on behalf of, and at the request of, our client, NLR, Inc. Anchor Engineering has reviewed the above referenced Beneficial Use Determination application currently pending before the Massachusetts Department of Environmental Protection (MassDEP). Anchor Engineering has also visited NLR's recycling facility and inspected the crushed and pulverized glass products as well as analytical data performed on both materials.

NLR is seeking a waiver to the Disposal Prohibition of Mercury-Added Products in Solid Waste in accordance with 310 CMR 76.04(2)(a)(1). Specifically, NLR seeks authorization to utilize crushed and/or pulverized glass generated at NLR's lamp recycling facility as alternative daily cover, road bedding material, pipe bedding material, gas venting layer and other similar construction type uses at several Massachusetts landfills. These uses are consistent with those included in the above referenced BUD application, and is consistent with other similar BUD applications approved by MassDEP.

NLR is seeking MassDEP approval for the above described alternative method of disposal in order to provide for re-use of an existing waste stream in a beneficial manner other than landfilling (outside of Mass.), which is the current method of disposal. The low levels of mercury that exist in the glass products is bound to the glass as the mercury containing phosphorus powder is removed during processing. It is not feasible to remove this mercury from the glass during processing using currently available technology. The only other known methodology of removing the residual mercury from the glass is through retorting the glass product, which is prohibitively expensive (in excess of $1,000 per drum).

The processes utilized by NLR at their recycling facility are designed to efficiently removing the mercury containing phosphorus powder from the lamp products during processing. The glass products generated from the processing activities are nearly free of the mercury containing phosphorus powder. Based upon Anchor Engineering's investigation of the glass products, it is our opinion that there will be no adverse environmental impacts resulting from the use of either the crushed or pulverized glass in the manner described above. This opinion is based upon the following:

- NLR has conducted routine testing of the glass material which shows the total mercury concentration in the glass materials is consistently 1 mg/kg or less and the TCLP mercury concentration in the glass materials is consistently 0.04 mg/l or less. These concentrations are well below both the standards established under the MassDEP Beneficial Use Determination Regulations and indicate that the material is not characteristically hazardous. A summary of the above referenced data is attached to this letter. Should the MassDEP wish to review full copies of the referenced laboratory testing reports, NLR will provide upon request.

- As the free powder has been removed from the glass, there is no concern with any residual powder creating dust when being dumped or utilized in the construction manners for which the glass is being proposed for use. Accordingly, it is our opinion that no additional measures of protection are required to minimize exposure and protect workers utilizing the glass products as described above.

We hope this letter provides sufficient information for the MassDEP to approve the requested waiver and BUD. If you have any questions or require additional information, please do not hesitate to contact Mr. Raymond Graczyk, President of NLR, Inc. at 877-822-4733 x 101.

Sincerely,

Matthew N. Brown, P.E.
Associate

Enc.

Cc: Saadi Motamedi, MassDEP
NLR, Inc.

Date Samples Received: 09/15/11

Client Name : **NLR, Inc.**	CTL Lab No. : 0911203
Report Date : 09/22/11	PO/ Job No. : NA

RESULTS OF ANALYSIS

Mass Analysis EPA 3050B

Matrix Type : **S**
CTL Sample No. **12133**
Field ID : **Glass Comp.**
09/15/11

Parameters	RL				
Arsenic-mg/kg	1.0	ND			
Barium-mg/kg	5	ND			
Cadmium-mg/kg	0.5	ND			
Chromium, Total-mg/kg	0.5	ND			
Lead-mg/kg	0.5	3.7			
Mercury-mg/kg	0.02	1.01			
Selenium-mg/kg	0.5	ND			
Silver-mg/kg	0.2	1.1			

TCLP EPA 1311

Matrix Type : **S**
CTL Sample No. **12133**
Field ID : **Glass Comp.**
09/15/11

Parameters	RL				
Mercury-mg/L	0.002	0.022			

RL= Reporting Limit ND = Not Detected

Matrix Types: W = Water/Aqueous S= Soil/Solid O= Oil/Hydrocarbon

Connecticut Testing Laboratories, Inc.
165 Gracey Avenue / Meriden, CT 06451
(203) 634-3731 (Fax) 630-1336
Certification CT-PH0547/ MA-CT035

Date Samples Received: 10/03/11

Client Name : NLR, Inc.	CTL Lab No. : 1011006
Report Date : 10/11/11	PO/ Job No. : NA

RESULTS OF ANALYSIS

Mass Analysis EPA 3050B

Matrix Type :	**S**
CTL Sample No.	**13230**
Field ID :	**Glass**
	09/29/11

Parameters	RL				Date Analyzed
Mercury, Total-mg/kg	0.02	1.31			10/10/11

SPLP EPA 1312

Matrix Type :	**S**
CTL Sample No.	**13230**
Field ID :	**Glass**
	09/29/11

Parameters	RL				Date Analyzed
Mercury-mg/L	0.002	0.007			10/10/11

RL= Reporting Limit ND= Not Detected

Matrix Types: W = Water/Aqueous S= Soil/Solid O= Oil/Hydrocarbon

Connecticut Testing Laboratories, Inc.
165 Gracey Avenue / Meriden, CT 06451
(203) 634-3731 (Fax) 630-1336
Certification CT-PH0547/ MA-CT035

Date Samples Received: 10/28/11

Client Name : **NLR, Inc.**	CTL Lab No. : 1011453
Report Date : 11/15/11	PO/ Job No. : NA

RESULTS OF ANALYSIS

Mass Analysis EPA 3050B

Matrix Type :	**S**
CTL Sample No.	**14795**
Field ID :	**Glass Comp.**
	Skid 001
	10/28/11

Parameters	RL				
Mercury-mg/kg	0.02	0.45			

TCLP EPA 1311

Matrix Type :	**S**
CTL Sample No.	**14795**
Field ID :	**Glass Comp.**
	Skid 001
	10/28/11

Parameters	RL				
Mercury-mg/L	0.002	0.017			

RL= Reporting Limit **ND** = Not Detected

Matrix Types: W = Water/Aqueous S= Soil/Solid O= Oil/Hydrocarbon

Connecticut Testing Laboratories, Inc.
165 Gracey Avenue / Meriden, CT 06451
(203) 634-3731 (Fax) 630-1336
Certification CT-PH0547/ MA-CT035

DATE	LAB NUMBER	ANALYSIS	RESULT	UNITS
1/3/2010	110073	TCLP Hg	0.0130	mg/l
3/3/2010	310122	TCLP Hg	0.0320	mg/l
3/15/2010	310240	TCLP Hg	0.0150	mg/l
4/26/2010	410443	TCLP Hg	0.0160	mg/l
6/14/2010	610232	TCLP Hg	0.0280	mg/l
7/23/2010	710351	TCLP Hg	0.0080	mg/l
8/23/2010	810175	TCLP Hg	0.0050	mg/l
9/13/2010	910090	TCLP Hg	0.0120	mg/l
10/7/2010	1010003	TCLP Hg	0.0120	mg/l
10/28/2010	1010355	TCLP Hg	0.0180	mg/l
11/10/2010	1110153	TCLP Hg	0.0240	mg/l
10/28/2010	1010355	TCLP Hg	0.0180	mg/l
11/29/2010	1110381	TCLP Hg	0.0350	mg/l
12/20/2010	111032	TCLP Hg	0.0120	mgl
1/17/2011	111152	TCLP Hg	0.0110	mgl
2/7/2011	211079	TCLP Hg	0.0140	mg/l
2/24/2011	211238	TCLP Hg	0.0170	mg/l
3/11/2011	311168	TCLP Hg	0.0220	mg/l
3/28/2011	311383	TCLP Hg	0.0150	mg/l
4/13/2011	411191	TCLP Hg	0.0060	mg/l
4/29/2011	511045	TCLP Hg	0.0150	mg/l
5/16/2011	511227	TCLP Hg	0.0300	mg/l
6/3/2011	611055	TCLP Hg	0.0100	mg/l
6/24/2011	611406	TCLP Hg	0.0070	mg/l
7/14/2011	711164	TCLP Hg	0.0200	mg/l
8/3/2011	811092	TCLP Hg	0.0060	mg/l
8/23/2011	811316	TCLP Hg	0.0030	mg/l
9/13/2011	911085	TCLP Hg	0.0220	mg/l
9/22/2011	911203	TCLP Hg	0.0220	mg/l
10/3/2011	1011006	TCLP Hg	0.0070	mg/l
10/7/2011	1011083	TCLP Hg	0.0420	mg/l
10/21/2011	1011354	TCLP Hg	0.0310	mg/l
10/28/2011	1011453	TCLP Hg	0.0170	mg/l
11/11/2011	1111151	TCLP Hg	0.0090	mg/l
12/1/2011	1211026	TCLP Hg	0.0440	mg/l
12/21/2011	1211318	TCLP Hg	0.0070	mg/l
12/1/2011	1211026	TCLP Pb	0.5250	mg/l
12/21/2011	1211318	TCLP Cd	BDL	mg/l